Dr Acland

with the Author's kind Regards

(2)

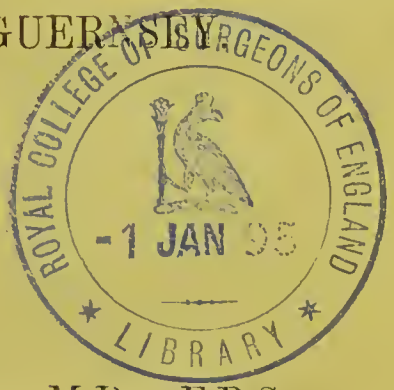
HOME RESORTS

FOR

INVALIDS:

ON

THE CLIMATE OF GUERNSEY.



BY

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HOME RESORTS FOR INVALIDS.

THE CLIMATE OF GUERNSEY.

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[*Read before the British Meteorological Society, May* 25, 1852.]

It is satisfactory to observe that the correlation between meteorological, medical, and agricultural science, is no longer the tacit recognition of an abstract theory; recent treatises on medical topography, and the effects of climate on cultivation, prove that the influence of atmospheric phenomena on animal and vegetable life is engaging some degree of attention: not however, as yet, to the full extent which the practical importance of the investigation merits and requires.

A powerful impulse was given some years ago to the study of meteorology, by the publication of the Report of the Committee of Physics of the Royal Society, intended principally for the guidance of persons attached to the Antarctic expedition. The instructions it contained, together with its suggestions as to the advantage of systematic co-operation, were speedily adopted by government and other public observatories, as well as by a number of private individuals; and the anticipations entertained, that uniformity of plan, steadily adhered to for a few years, would furnish the most perfect data for its own correction, have been fully realised.

The methods of ascertaining and applying these data are due to James Glaisher, Esq., F.R.S., whose extensive computations and inductions contribute in an eminent degree to advance the science of meteorology many steps in its progress towards maturity. This gentleman's invaluable tables on diurnal range, reprinted from the *Philosophical Transactions*, at the suggestion of the society I have the honour of addressing, afford facilities for reducing a few observations, taken at the most convenient hours of the day and night, to mean monthly values.

The consequence is, that much labour, under other circumstances useless, is being rendered valuable, and many individuals, previously mere amateurs of science, are converted into zealous and efficient coadjutors.

The results of many of their observations, published under Mr. Glaisher's supervision, in the Registrar General's Quarterly Returns, form an accumulating fund, from which accurate information relative to the more important elements of British climates, is becoming generally diffused throughout the civilised world. The number of contributors possessed of authentic instruments, and uniting in one uniform system of observation and registration, is considerable; they are stationed over an extent of country exceeding seven degrees of latitude, and nearly the same number of degrees of longitude, and their records are strictly comparable with one another, and with one official standard. Nevertheless, the labourers in the field of British meteorology are still too few; for, since more correct knowledge of the true characters of foreign climates has been attained, and our own has become more justly appreciated, valetudinarians are happily rescued from indiscriminate expatriation, and allowed to enjoy the numerous advantages afforded by many of our inland vales and sheltered bays; it becomes, therefore, desirable, if not imperative, that the sanitary qualities of these home resorts should be more extensively and minutely investigated.

There is unfortunately no unexceptionable climate, either at home or abroad, any more than an universal panacea "for all the ills that flesh is heir to". Each locality possesses peculiarities in respect to climate, and each may in turn be rendered available, when its characteristics are more extensively promulgated; various phases of disease requiring the presence or absence of some special element, or group of elements. "The limits within which persons of feeble organisation can enjoy life," said the late Dr. Mason, and he spoke from painful personal experience, "are more confined than those which are suitable for other persons; but the knowledge of these limits may serve to procure for delicate individuals health, and even longevity."

In order, however, to ascertain these limits, something more is necessary than a mere enunciation of mean annual temperature; many localities, agreeing in this one particular, differing *toto cælo* in others of much more vital importance; for instance, the distribution of heat and cold over months and seasons, the extent of mean daily range, but, more than all, the amount and diffusion of aqueous vapour in the atmosphere. Hygrometric observations are "equal in importance to any of those usually taken by meteorological observers, and superior to most of them, particularly in distinguishing the character of different localities"; for moisture has a much greater share in determining the effects of climate upon the human constitution than is generally imagined. "When," says Dr. Mason, "the humidity of various climates shall be as well known as their temperature, much greater precision will be attained in the localisation of individuals suffering under certain states of diseased action, whether constitutional or local, than has hitherto been arrived at."

The deficiency of hygrometric observations, and of the still more valuable deductions derived from them, has hitherto interfered seriously with the practical utility of the only comprehensive work we possess on the sanative effect of climate. Sir James Clarke, fully

aware of this deficiency, remarks, "much disappointment has been felt that, with the exception of three or four places, no data have been attainable, on which to form a table of the hygrometer." Since the publication of the last edition of his valuable work, much has been contributed on this interesting point, but so diffused over the pages of periodicals, serials, and proceedings of societies, as to be, in a great measure, unavailable to medical men engaged in active practice. To whom, nevertheless, such information would be especially valuable; for on them naturally devolves the difficult, and often ungrateful, task of directing invalids in the selection of the climate best suited to their pathological necessities.

The British Meteorological Society, founded upon the best models of other scientific and literary associations, will, it is to be anticipated, supply the existing deficiency. The principal objects of the society are the collection of accurate manuscript observations, the publication of tables, the reduction of observations to useful results, and the distribution of meteorological papers, so as to facilitate comparisons between various climates, home as well as foreign.

Frequent applications made to me, some years ago, for information as to the sanative influence of the climate of this island, induced me to examine the subject, so that I might be enabled to form a correct estimate, and give a conscientious opinion. Finding, however, that records of temperature, although more accurate than could have been expected, were not sufficiently extensive or continuous; that neither barometric, hygrometric, or hyetographic observations had been made, and that published accounts were either founded on insufficient data, or derived entirely from relative geographical position, I determined, in the summer of 1842, to undertake a series of observations, in accordance, as much as possible, with the instructions issued by the Royal Society. These observations have been continued without intermission up to the present moment; and latterly the corrected results have been regularly published in the Registrar General's Quarterly Returns.

These results, from January 1845 to December 1851, inclusive, carefully revised, are employed in the construction of the accompanying tables, which I trust will convey a sufficient amount of information for practical purposes, and render it unnecessary to offer more, by way of comment, than may be required for their illustration.

A paper on the climate of Southampton, by Mr. Drew, similar in all essential points to mine, but much more comprehensive, is printed in the Report of the British Association for 1851. It is to be hoped that Mr. Drew's example may be followed by other members of the Meteorological Society, as well as by others interested in the advancement of the hygienic department of medical science.

The results combined in the tables, present a fair average of hot and cold, dry and rainy years. It would be presumptuous, however, to assume that the characteristics of this, or any other climate, could be positively determined by observations extending over so brief a space of time as nine years. They may, nevertheless, be relatively valuable, by being placed in juxtaposition, year by year, and month by month, with those taken at the Royal Observatory. I have selected Greenwich for the purpose of comparison, not on account of contrast, but

because it is the acknowledged standard with which all results, duly corrected, may be most advantageously compared.

Before I proceed further, it will be proper to give a full account of the instruments employed, of their position, and relative bearings, as I fully concur in an opinion much to be respected, that omissions on these points are prejudicial, not only to the science of meteorology, but to the reputation of the observer.

The barometer employed until the end of June 1851, was one of Newman's, with an iron cistern and brass scale, made for the Observatory at St. Helena, and compared with the standard at the Royal Society. Unfortunately, the minutes have been lost, so that the correction for index error is wanting, as well as that for elevation above the mean level of the sea, amounting to 123 feet. Corrections for capacity, capillarity, temperature, and diurnal range, have, however, been carefully applied. The instrument now in use was made by Barrow, and compared with the standard at Greenwich by Mr. Glaisher. The tube requires no capacity correction; those for capillarity and index error amount to +·027. It is placed in a dressing-room, in which the temperature is equable, and its readings are registered at 9 A.M. and 3 P.M. daily.

The thermometers consist of registering instruments, for maximum and minimum temperature, on Rutherford's construction; they are read at 9 A.M. daily, when the indices are re-adjusted: these, as well as a delicate wet and dry bulb thermometer, are made by Newman. They are grouped together about four feet from the floor of a shed, built for the purpose in a small garden, which receives no ray of sunshine from November to March. Nevertheless, a white double camelia japonica blossoms freely in this plot of ground, during the months of January and February. The aspect of the instrument is north by east; the nearest object is a dark blue granite wall, thirty feet distant, and ten feet high; a higher wall forms the western boundary; and a house front, with an intervening street, the eastern side of the otherwise open space they occupy. They are completely protected from radiation and reflection by an open trellis, and some shrubs, before and on each side of the pent-house. Until the end of 1848, the dew point was observed by means of Daniell's hygrometer, made by Newman; since that time, it has been computed from the readings of Mason's wet and dry bulb hygrometer, at 9 A.M. and 3 P.M., by the aid of Mr. Glaisher's tables.

The rain-gauge is a copper funnel twelve inches in area, forty-seven feet above the ground, which discharges its contents into a closed reservoir, from which the water is measured at 9 A.M., by means of a graduated glass jar. The receiving funnel is remote from walls, chimneys, or other influence.

The direction of the wind is chiefly ascertained by a very delicate vane, constructed according to Mr. Luke Howard's plan. In estimating its force, a calm is represented as 0°, a gale as 6°.

Believing that no station was better calculated than this, for ascertaining the force, direction, and variation of the wind, and that careful observations might tend to illustrate, if not elucidate, the laws of storms in these latitudes, I applied to the British Association, and also to the Royal Society, for a self-registering anemometer, for which a fitting site would have been a tower of considerable elevation recently

built, as free from the influence of reflected currents as a tall ship-mast in mid-channel. These applications, however, were not acceded to, but possibly led to the erection of an anemometer, by the ordnance department, in a position not calculated to afford results of more than local value.

In estimating the amount of clouds, a sky perfectly overcast is indicated by 10·, a cloudless sky by 0·.

Table I (p. 14) requires little or no explanation; it may be consulted as a general map, exhibiting the leading elements which constitute the climate, for the period of observation.

Table II (p. 14) shows that, although the pressure of the whole atmosphere, following the same line of fluctuation, is, with few exceptions, greater than that of Greenwich, the excess is not so great as might have been imagined. To account for this slight difference, the large amount of rain, the heavy dews, the absence of fog, the comparative degree of dryness, and other circumstances, must be referred to.

The highest mean occurred in 1850 and 1851, the former a moderately rainy, the latter a dry, but not the driest, year; in both the excess of air-temperature above that of the dew point was below par; whereas in 1848, a remarkably rainy year, the atmospheric pressure was at the minimum, with comparatively a high dew point. 1844, the driest year of the series, with the least number of wet days, shows the minimum excess of air-temperature over that of the dew point, and goes to prove, in connexion with other circumstances, that the smaller the amount of rain, the nearer the air approaches the point of saturation.

Table III. (p. 15.) In reference to the elastic force of vapour, Mr. Glaisher, in his remarks on the meteorology of England for the year 1847, observes, that "the mean pressure of the atmosphere of vapour seems to diminish 0·010 for an increase of one degree of latitude." The same ratio appears to obtain as the latitude decreases; for on comparing the elastic force at Guernsey, two degrees further south, with that of Greenwich for the same year, the increase of force amounts to ·024, which, allowing for difference of longitude, and other disturbing causes, is a close approximation.

Table IV (p. 15) presents a view of the mean monthly range of the barometer at Guernsey only, where its fluctuations are generally moderate, but frequent. The highest reading (30·740) occurred on the 13th of February 1849, a very dry month, during which the aurora borealis was twice visible.[1] The lowest reading (28·500) took place on the 23rd of February 1843, a particularly hazy month; the rain, instead of descending heavily, as usual, fell in continuous drizzling showers.

Table V. (p. 16.) The values in this table are obtained from the means of the dry bulb at 9 A.M. and 3 P.M., and from those of the register thermometers, all corrected for diurnal range, the average results afford the adopted temperature. It is possible, as Mr. Glaisher observes, that the corrections do not at all seasons apply to maritime situations, I am inclined to think that during the months of May, June,

[1] On the 19th of February 1852, the Aurora again appeared; on the 22nd, the maximum reading of the barometer was 30·508, and continued high throughout March and April, during which the preponderance of north-east wind was remarkable. The coincidence of the highest barometer with the appearance of Aurora on both occasions is worthy of remark.

and July, the objection obtains, but for the remaining months the agreement is sufficiently accurate.

The mean annual temperature (51·9) is 2·5 above that of Greenwich; allowing one degree of increment for each degree of latitude,—taking into account the increase due to west longitude, and also the difference of level, there appears to be a very satisfactory coincidence between observed and calculated results.

February, here, as in all places south of latitude 52°, is the coldest month, but does not differ materially from January in this respect. The hottest month is July, but the temperature of August is the merest trifle lower. The uniformity between these months prolongs the summer, and determines the maturation of grain and fruits. In May, June, and July, the mean temperature of Guernsey is lower than that of Greenwich, but higher during the remaining nine months of the year. This distribution of heat renders the summer months cool and bracing, the winter, spring, and autumn, mild and uniform.

The alleviation of the winter's cold, and the lowering of summer's heat, in places on the coast, are thus accounted for by Mr. Glaisher: "In winter, when the air is colder than the water, it takes a portion of heat from the surface of the sea, which, cooled by being thus brought in contact with the cold air, sinks, and is replaced by warmer portions from beneath, whilst heated air rises and flows over the land. In summer, when the air is warmer than the water, much heat becomes latent, by the quick evaporation of the water. The water, changed into vapour, and mixed with the air as an elastic fluid, passes inland, takes a share in the total pressure of the atmosphere, and is of the utmost importance in reference to barometric variations."

The equability of autumn, and its duration, constitute peculiar features in the climate of Guernsey; for, notwithstanding the light north-east breezes of September, the storms and heavy rains of October or November, this season is often remarkably fine and genial, extending even to the middle of December, and abridging most agreeably the duration of winter. So frequent is the occurrence of this second summer, that it is proverbially designated by the peasantry as "*le petit été de Saint Martin*", in consequence of its dating in general from the 10th of October, old Michaelmas or St. Martin's day. The enduring foliage of the Guernsey elm, and the length of twilight, favour the illusion, and complete the reality of this summer dream.

Reverting to the distribution of heat and cold, it must be remarked, that the mean temperature does not depend so much upon the heat of the day, as upon the warmth of the night; in which respect the climate of Guernsey closely resembles that of Penzance. This is strikingly illustrated by the fact that, except in cases of severe illness, fires are not endurable in dressing rooms or sleeping apartments. The presence of ice, in water kept for the purposes of the toilet, is so rare, that the following memoranda, accompanied by notes of exclamation, occur in a journal of the weather, kept by a gentleman of this island, from 1777 to 1844: "Memorandum, December 20th, 1799. During the night the weather was so intensely cold, that the water in a jug in my bed-chamber was frozen." And again: "January 19th, 1838. This night the weather was so severely cold, that the water in a wash-hand basin in my bed-room was frozen!!!"

During my own nine years of observation, the readings of the thermometer, exceeding 75°, occurred sixty-five times, forty-two of which took place during the hot summers of 1846 and 1847. Once only, on the 16th of July 1847, it attained the unusual height of 83°. The number of readings at and below 32°, in the same period, amounted to no more than fifty, thirty-five of which occurred in the years 1843, 1844, and 1845. On the 29th of January 1848, the temperature fell as low as 24° 5, the maximum reading for the same day being 40°. The temperature is also stated to have fallen to 17°5 in December 1840. These examples of extreme heat and cold are, however, exceptional.

From these details it will be seen that frost is neither frequent nor lasting; in proof which it may be mentioned, that the small ponds of fresh water, sparingly diffused through the island, seldom afford ice sufficiently firm to admit of skaiting; proficiency in this accomplishment is therefore denied to those who have not attained it in colder latitudes.

Hoar frost is also of rare occurrence, owing partly to the high night temperature, and partly to the constant presence of a breeze, more or less fresh. Neither is hoar frost general when it does take place, being confined to elevated and bleak situations, and chiefly limited to the months of January and February. Spring vegetation therefore is rarely checked by that condition which seriously interferes with early crops, even in the mild districts of Devonshire and Cornwall, where the husbandman is often driven to the necessity of protecting early vegetable productions by slight layers of straw, or to the more troublesome operation of lighting fires to windward during cold clear nights.

Table vi (p. 16). From the foregoing explanations it will be found, as might have been expected, that the mean daily and monthly range is moderate, giving to this island that equability of temperature so favourable to invalids, and persons of delicate organisation. This moderate range is so constant that, in the formation of comparative tables for different parallels of latitude, it has been found necessary to separate the two principal Channel islands. Mr. Glaisher says on this subject, "the results from Jersey and Guernsey have not been combined, on account of the great difference in the ranges of temperature between these two places."

The equability of climate is probably owing, in a great measure, to the more perfect insulation of Guernsey; the nearest continental headland, Cape Flamanville, being at the distance of twenty-eight statute miles, in a direct line to the eastward. On the north-east it is open to the German Ocean, on the west and south to the vast expanse of the Atlantic, without any intervening continent nearer than America. It is therefore evident that from whatever quarter the wind may blow, it is not intercepted by any land, of sufficient extent or proximity, to prevent its being tempered by passing over a much larger proportion of water.

Tables vii, viii, ix (pp. 17, 18). Persons who have experience in the fog-banks of the British Channel, knowing Guernsey to be placed in the midst of this channel, and consequently accustomed to contemplate it as enveloped in fog, haze, and mist, more or less dense and constant, will no doubt be surprised at the results revealed by hygrometric observation. The unexpected fact of the comparative dryness of its

atmosphere will, however, appear less strange when the accompanying tables, and especially the analytical table, come to be examined.

That the evaporation from so large a surface as the seas which surround the place, should produce an atmosphere more charged with vapour than that of an inland district, is not to be wondered at; but the difference between the air temperature and that of the dew point, being greater than, *à priori*, could have been imagined, the question arises,—what becomes of the humidity? The solution is to be sought for in the heavy rain, the copious dews, the constantly interchanging currents of air between land and sea, and the power of the sun's rays, which during the morning impinge directly on a surface declining steadily from west to east. These circumstances, added to the absence of rivers, marshes, or large bodies of inland water, account for the rarity of land fogs of any intensity, or duration. Sea haze is, however, by no means uncommon, especially in spring and autumn, forming what, on the Cornish coast, is called the "pride of the morning"; but it dissipates as soon as the sun acquires sufficient elevation, and, unless in the total absence of a breeze, never spreads to any extent over the land. The springing up of a light breeze, or the veering of the wind a point or two from south to west or east, suffices to disperse the vapour, and restores the blue of the sky to its usual depth of hue and transparency.

Allusion has already been made to the dew, which, in spring, but especially in autumn, is exceedingly copious, and does not evaporate until the sun has gained considerable elevation. This will, in some measure, account for the high point of condensation observable in October and November, when sunshine and wind, succeeding to heavy rain, combine to induce much evaporation.

The dew point increases from its minimum in February progressively to its maximum in July; it experiences slight fluctuation till September, and then somewhat rapidly declines. It is proportionately lower than that of Greenwich in May, June, and July, when the temperature is also lower. The mean annual difference, it will be seen, is 2·6, in favour of Greenwich. The degree of humidity appears to have preponderated during the snowy spring of 1845, and the dry years of 1850 and 1851, more than at any other period.

The amount of cloud has only been registered since 1849; it is therefore impossible to arrive at a proper estimato as to this particular, but a long course of unrecorded observation leads to the belief, that the mean of the last two years is not much below the average. The frequent variation in the direction and force of the wind induces speedy dispersion of cloud, and it is seldom that a day passes without the appearance of a considerable extent of blue sky.

The causes which principally modify the climate of Guernsey are to found in the characters of the wind—not so much as regards the quarter from which it blows, as in its force and frequent variation—for instance, on the 30th and 31st of December 1852, the temperature, the cloudless state of the sky, and the direction of the wind (N.E.), were identical. But the one day was almost calm, on the other a fresh breeze prevailed; the former was warm and genial, the latter keen, unpleasant to the sensations, and trying to invalids. Little dependence can therefore be placed on the thermometer alone, as

affording a criterion of the effects of weather upon the feelings or the health.

The Tenth Table shows that the northerly winds predominate, the westerly combination being somewhat more frequent than the easterly. In autumn and winter, N.W. winds are generally strong and boisterous, with heavy gusts and squalls; the weather, however, between the showers, is not cold, and never frosty. Gales from this quarter may generally be foretold by the arrival of French chassemarées; the island is generally encircled by these storms some days before they appear, and when the masters of these small coasters observe heavy banks of cloud and mist hovering over Cape Frehel, they immediately alter their course, and steer for some secure haven; it is seldom that these harbingers of a storm are mistaken, and fortunately so, for westerly gales are in general very fatal to shipping off the coast during their occurrence.

A struggle for pre-eminence, between the N.W. and N.E. winds, generally leads to thunderstorms, with hail showers, and bleak, raw weather. If the N.E. prevails, a steady, but not boisterous gale ensues, which in January, February, and March is accompanied by frosty but fine weather; a few points to the north alter its character materially, and a breeze from N.N.E., blowing over England, in winter, generally brings with it heavy but brief falls of snow, with gloomy boisterous weather.

The north-east and east wind, so much decried, is by no means cold or unpleasant, unless strong or of long continuance. On the contrary, the finest weather in spring, summer, and autumn, is associated with light breezes from this point of the compass. Direct progression from north-east towards the south affords mild genial weather in summer, but in winter, the south-east wind brings with it frequent, but not heavy or lasting showers of snow, especially if cold prevails in France. This condition, recognised even by ordinary observers in the present day, appears to have been familiar upwards of two centuries ago. Lord Clarendon, who composed a large portion of the *History of the Rebellion* during his residence in Jersey, writes to Dr. John Earles as follows:—"And now I have but just answered your letter, and can hardly contain myself from saying something new, for the cold hinders me not, though I believe that we have had as sharp a season as you in Paris." This historical fact is corroborated by subsequent experience, and we are aware, that if cold appears early in winter in the south of France, it will entail the same description of weather in the Channel Islands, towards February or March; this was strikingly exemplified in the spring of 1845.

The south-west, here as elsewhere in the same latitude, is the rainy wind; the veering, however, a point or more to the westward brings sunshine and light showers. During early spring, if there has been continued snow and frost in England or France, followed by a sudden thaw, the south-west and south-east winds produce here a continuance of misty weather with drizzling showers.

At all seasons, a sudden retrograde motion of the wind to the south-east often ushers in a gale of some violence; if accompanied by rapid and considerable depression of the barometer, the passage of a rotatory storm is indicated, the wind during its continuance gradually veering

to the north-west or west. These storms never last beyond twelve hours, ceasing as suddenly as they arise, the violence with which they visit us being regulated by the proximity or remoteness of the centre of the vortex.

Table xi (p. 18). It will be seen by this table, that rather more than one quarter of the total amount of rain is collected in two months, those of January and October. At all seasons it falls in the form of copious showers, generally during the evening, night, or early morning, leaving the middle of the day fine; indeed, a day *entirely* rainy is of very rare occurrence, and the number of showery days is by no means in proportion to the total quantity of moisture deposited in the shape of rain, hail, sleet, and snow.

With respect to snow, the average number of days is four; in some years there is none at all, in others, only a few flakes; but in 1845 and 1846, and in 1849, frequent showers took place; all, from the slightest to the heaviest, are included in the average.

However great the amount of rain, it must be remarked that it never remains on the surface. The loose gravelly nature of the soil allows of ready percolation, the brisk wind and warm sunshine favour rapid evaporation, so that pedestrian exercise may be taken soon after the fall of the heaviest shower. Charles II, although the founder of the Royal Society, can scarcely be looked upon as high authority in matters of science; nevertheless, his well known remark, that, "take one day with another, and you may be out more days in the open air in England than in any other country in Europe", may be applied with much truth to Guernsey.

A few remarks may here be appropriately introduced relative to geological formation. Much need not be said on this subject, as Guernsey is entirely plutonic and azoic. Rocks, even of the lower Silurian series, are wanting, and none of the more recent formations are anywhere detectable, Granite exists in almost every variety, from hard, black, hornblende rock, to grey, blue, and reddish syenite, with superimposed gneiss, and intrusions of coarse porphyry, serpentine, micaceous and other schists. The surface of the rocks, in which felspar and mica predominate, is deeply decomposed, and therefore very permeable to moisture; the harder rocks contain innumerable fissures, so that water finds a ready issue, ultimately forming springs and rivulets of pure, fresh, sparkling water.

Lime is absent, traces only of its existence are to be found in narrow veins, intersecting a few of the trap rocks; the decomposition of hornblende affords a small supply of this material to the soil in certain districts, whilst the potass of the felspar forms a substitute in others. The combination of the elements of granite constitutes a friable, warm soil, peculiarly fertile, the more so, as the elevation is nowhere great. The latter fact is important in an agricultural point of view, for, as Mr. Whitby remarks, "where granite is found one or two hundred feet above the sea, the soil is remarkably early and prolific."[1]

The result of this condition of soil, the rare occurrence of frost, and the abundant supply of moisture, is the production of early and luxuriant vegetables in great profusion.

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[1] Journal of the Royal Agricultural Society, 1850.

With respect to forest trees, it has been observed, that about the middle of March, horse-chestnuts, sycamores, limes, Canada, Hampshire, and Devonshire elms, are in free leaf bud, and towards the end of the same month their foliage is fully developed. The ash, oak, and beech, follow somewhat later, and all shed their leaves towards the end of November. The Guernsey elm, however, a tree peculiar to the island, acquires foliage later in the season, about the middle of May, but retains its leaves generally until Christmas. This, by far the most abundant of the forest trees, lends the chief feature to the landscape, apparently retarding the usual appearance of spring. Viewed singly it is unpicturesque, rendered still more so by periodical lopping for economic purposes, but as it is predominant, and continues green until very late in the year, it imparts to the first month of winter the attributes of autumn.

The common lilac comes into blossom, with the horse-chestnut, between the 15th and 20th of April, at which period, and often earlier, apple and pear-trees are in full bloom; and the fruit of the peach, apricot, nectarine, and plum is permanent. In the latter respect, however, Guernsey must yield the palm to Jersey; but, if the one, with its high summer temperature, is confessedly the island of delicious and abundant fruit, the other, owing to the equability of its temperature, must be recognised as the garden of delicate and luxuriant flowers.

The frequency with which the aloe flowers, the vast size of the hydrangea, and the profusion of its blossoms, the spread and vigour of the myrtle and Banksia rose, the hardihood of the scarlet geranium, of the American and Mediterranean heath, but more than all, the luxuriance of the camelia japonica, attest the mildness of the winter season. The latter tree flourishes in every garden and shrubbery, either as a standard or trained against walls, and it is worthy of remark, as showing the effects of acclimatisation, that these trees, which on their first introduction commenced flowering in October, remaining covered with blossoms throughout the winter, have become tardier and more tardy in their period of inflorescence with each succeeding year, assimilating more and more to the habits of ordinary shrubs which bloom in early spring.

The following dimensions of three camelias trained against a south wall, eleven feet high, will convey some idea of the size these trees attain. The lateral extent of the double white camelia is twenty-five feet six inches, the girth of its stem being two feet eight inches. The spread of the double red is twenty-five feet ten inches, the circumference of the trunk two feet one inch. The camelia warata spreads eighteen feet six inches, its stem being one foot four in circumference. These trees are covered with blossom from January to April, and flourish in spite of frost, snow, wind, hail, and rain. Orange trees also of considerable size are to be found in this and other gardens, and ripen their fruit in perfection.

These are mentioned as instances, among many, that exotics which grow with reluctance, or not at all, in the mildest districts of England, flourish during the winter in this island, and, in summer, emulate the luxuriance which they possess in their native climates.

If, as Sir James Clarke observes, "more conclusive evidence in

favour of climate is furnished by the growth of exotic plants, than by thermometric results", the naturalisation of foreign shrubs and plants in this island may be triumphantly appealed to.

The foregoing details relative to the climate of Guernsey, although defective in many essential points, such as the electrical state of atmosphere, the force of the wind, the range and intensity of solar and terrestrial radiation, will I trust be found sufficient to afford my professional brethren some means of forming an opinion as to the qualities of this climate in reference to health and disease. This communication would be still more defective, if it did not contain some account of the diseases prevalent in the island. I have to lament that the absence of systematic registration prevents me from giving any official information on the subject of vital statistics, and obliges me to rely almost entirely on the results of my own experience.

The type of fever most frequently requiring treatment, is the remittent, sometimes complicated with sub-acute inflammation of various tissues, almost invariably the mucous. These fevers are most common in the low parts of the town, or along the coasts, when a wet summer has been followed by a warm autumn. When neglected in the incipient stage, or when the local atmosphere is vitiated, they assume a typhoid character, but under more favourable circumstances are mild and tractable. Genuine typhus, in a epidemic form, seldom occurs, owing to the natural facilities afforded for drainage in the town, and to the cleanly substantial dwellings of the peasantry, and their temperate habits.

Ague, which half a century ago was prevalent in a certain district, then partially submerged, has now entirely disappeared, owing to the exclusion, by embankment, of an arm of the sea, which overflowed and laid waste a tract of low land in the north of the island.

Scarlatina, measles, and other diseases incident to childhood, are in general mild. During cold winters and springs, however, scarlatina sometimes assumes a congestive form from the commencement; this is succeeded by inflammation of the lining membrane of the frontal and adjacent sinuses, with defluxion of acrimonious humours from the nostrils; and cases so affected are almost invariably fatal, from the supervention of cerebral symptoms. This intractable and insidious form of disease is frequently attributable to defective local drainage, which being remedied, the disease assumes a milder character, even in houses wherein it has previously been fatal. An ill-conditioned stench-trap is sufficient to turn the scale.

From the introduction of vaccination into Guernsey, at the commencement of the present century, to the year 1825, small-pox made its appearance only once, as far as I can ascertain. It has since then visited the island more frequently; but as its advent is invariably traceable to importation, and as insular position affords ready means of detection, its propagation might easily be prevented.

Pleurisy, pneumonia, peritonitis, and indeed all acute inflammations of serous tissues, or parenchymatous structures, are rare, being, as it were, replaced by sub-acute inflammation of the mucous membranes, such as bronchitis and muco-enteritis. The former occurs in winter and spring, the latter in autumn, partly owing to atmospheric transitions, and partly to the effects of the large quantities of fruit grown on the island, or imported from France.

Another disease of rare occurrence is acute rheumatism; its chronic

form, however, is not uncommon among the peasantry, many of whom are also fishermen, who, after being exposed to the vicissitudes of weather during the day on land, pass their nights at sea in open boats.

The most predominant malady is dyspepsia, popularly denominated "biliousness"; less, attributable, however, to climate than to errors of diet. It affects the peasantry, owing to their meagre diet of thin soup, tea, and fish, with seldom any animal food except a modicum of bacon. The town residents also suffer, but from an opposite cause—the cheapness and abundance of the luxuries of the table. Nevertheless, vesical calculus is a rare phenomenon, and lithic acid deposits by no means so frequent as the prevalence of dyspepsia would lead one to imagine. Disorders accompanied by the phosphatic diathesis are still more rare. It becomes a question, whether the absence of calcareous ingredients in the water used for drinking may not be a great cause of this immunity, and whether the presence of alkaline muriates and sulphates in this liquid, might not render its constant use beneficial in calculous complaints.

Pulmonary consumption does not exceed the average of other places; and Mr. Phillips, of the Westminster Hospital, at whose request I examined a number of children in each of the parishes of this island, arrives at the conclusion, that scrofulous swellings in children's necks, considered as indications of a strumous constitution, "are very nearly the average frequency of England and Wales, and not greater in Guernsey than in the Isle of Wight". An eminent physician, practising in the interior of England, is of opinion that patients, affected with strumous diseases of the joints and glands, derive much benefit from a residence in Guernsey. The presence of iodine may not be without its influence in these cases, considering the quantity of sea-weed on the coasts, its use as an extensive dressing for the soil, and its consumption as fuel by the cottagers.

Asthma, in all its varieties, is not only a very rare complaint among the inhabitants, but patients suffering under that form called "dry asthma" experience immediate relief on their arrival here; and young persons, after a residence of more or less duration, are often found to lose their predisposition to this disorder.

My own experience enables me to state, that persons from the northern and midland counties of England, with temporarily impaired health, but without any specific disease, derive the greatest benefit from removal to this island; and, after a sojourn of a year or two, without further medical interference than the regulation of habits and diet, are enabled to return to their homes, and resume their ordinary occupations, with health much improved. This may perhaps result from mere transition from a cold to a climate some degrees warmer and more equable; from an inland to a maritime situation. And it appears to be a good principle for adoption, in recommending what is called "change of air", to transfer delicate persons, residing inland, to the sea-coast, and *vice versâ*.

Without any desire to indulge in special pleading, or to advance any statement not strictly founded on fact, I cannot conclude without remarking on the benign influence of the climate on aged persons and young children; and on the advantages of this island as a transition stage, between the East and West Indies and England, for individuals whose health has suffered from long residence in tropical climates.

TABLE I.

Mean results of all particulars respecting the Climate of Guernsey, for nine years.

	JAN.	FEB.	MARCH.	APRIL.	MAY.	JUNE.	JULY.	AUGUST.	SEPT.	OCT.	NOV.	DEC.	YEAR.
Mean Barometer corrected	29·827	29·852	29·827	29·725	29·849	29·887	29·898	29·889	29·936	29·777	29·836	29·939	29·853
.. Elastic force of vapour	·268	·266	·264	·302	·338	·409	·442	·448	·436	·359	·313	·275	·344
.. Range of atmospheric pressure	1·297	1·180	1·257	·950	·922	·776	·729	·718	·952	1·163	1·199	1·206	1·030
.. Adopted temperature	43·8	43·6	44·4	48·1	53·3	58·4	61·9	61·3	59·4	54·1	49·2	45·4	51·9
.. Dew point	40·3	39·2	39·6	43·2	46·0	52·0	54·6	54·6	54·0	49·4	44·3	40·9	46·6
.. Difference or degree of dryness	3·5	4·4	4·8	4·9	7·3	6·4	7·3	6·7	5·4	4·7	4·9	4·5	5·3
.. Degree of humidity	·885	·865	·863	.864	·804	·828	·814	·816	·857	·851	·854	·860	·846
.. Daily range of temperature	6·1	7·0	8·0	9·5	11·1	12·6	11·5	10·2	8·7	6·9	5·8	6·1	8·7
.. Amount of rain collected	3·977	2·914	2·809	2·977	2·044	1·883	2·123	2·152	2·119	5·131	3·879	3·496	35·524
.. Number of days of rain, hail, and snow	18·	15·	16·	16·	11·	9·	11·	12·	11·	19·	18·	17·	174·
.. Amount of cloud for 1850 and 1851	7·	5·5	5·3	5·9	4·7	3·4	4·9	4·8	3·8	6·9	6·7	6·1	5·4
Prevailing winds N.E.	6·	7·	9·	9·	13·	11·	7·	6·	15·	6·	6·	9·	104·
Prevailing winds S.E.	6·	4·	4·	3·	3·	2·	2·	1·	3·	3·	5·	5·	41·
Prevailing winds S.W.	9·	8·	8·	8·	6·	9·	11·	10·	5·	12·	9·	9·	104·
Prevailing winds N.W.	10·	9·	10·	10·	9·	8·	11·	14·	8·	10·	11·	8·	118·

TABLE II.

Mean Height of Barometer, corrected for Capacity, Capillarity, Temperature, and Diurnal Range; but not for Index Error, or Sea Level.

	JANUARY.		FEBRUARY.		MARCH.		APRIL.		MAY.		JUNE.		JULY.		AUGUST.		SEPTEMBER.		OCTOBER.		NOVEMBER.		DECEMBER.		MEAN OF THE YEAR.		Difference.
	R. Ob.	Gu.	R. Ob.	Gu.	R. Ob.	Gu.	R. Ob.	Gu.	R. Ob.	Gu.	R. Ob.	Gu.	R. Ob.	Gu.	R. Ob.	Gu.	R. Ob.	Gu.	R. Ob.	Gu.	R. Ob.	Gu.	R. Ob.	Gu.	R. Ob.	Gu.	Gu.
1842																								30·007			
1843	29·674	29·790	29·473	29·478	29·758	29·750	29·687	29·764	29·664	29·686	29·700	29·753	29·826	29·931	29·819	29·885	30·017	30·052	29·604	29·750	29·718	29·811	30·245	30·304	29·765	29·829	+ ·064
1844	·891	·981	·498	·618	·710	·787	30·000	30·057	·945	·947	·814	·907	·753	·880	·677	·810	29·881	29·914	·562	·646	·690	·724	29·885	29·843	·776	·843	+ ·067
1845	·701	·777	·840	·879	·795	·896	29·696	29·740	·712	·824	·775	·883	·769	·879	·729	·859	·801	·842	·847	·958	·575	·651	·658	·797	·742	·832	+ ·090
1846	·671	·781	·849	·958	·655	·770	·589	·646	·779	·837	·866	·925	·757	·872	·777	·866	·824	·866	·516	·628	·821	·849	·697	·808	·733	·817	+ ·084
1847	·735	·749	·790	·871	·882	·917	·653	·750	·764	·824	·805	·908	·924	·974	·876	·955	·825	·954	·803	·858	·905	·962	·778	·779	·807	·875	+ ·068
1848	·816	·836	·517	·676	·505	·532	·589	·572	·926	·961	·642	·742	·836	·938	·732	·829	·832	·879	·646	·753	·785	·928	·807	·861	·720	·792	+ ·072
1849	·771	·905	30·100	30·232	·915	30·007	·517	·582	·766	·826	·868	·922	·789	·900	·811	·930	·767	·800	·744	·802	·713	·891	·795	·889	·800	·891	+ ·091
1850	·854	·909	29·828	·018	30·039	·080	·591	·642	·714	·763	·886	·957	·789	·899	·787	·893	·930	·962	·681	·800	·728	·860	·914	·990	·814	·898	+ ·084
1851	·642	·724	·891	29·937	29·600	29·710	·726	·769	·891	·973	·895	·992	·708	·807	·890	·970	30·025	30·057	·726	·800	·781	·857	30·135	30·183	·821	·899	+ ·078
Means	29·751	29·827	29·754	29·852	29·762	29·827	29·672	29·725	29·795	29·849	29·806	29·887	29·795	29·898	29·792	29·889	29·878	29·936	29·681	29·777	29·749	29·836	29·879	29·939	29·775	29·853	+ ·078

Note.—Highest reading = 30·740, on the 11th of Feb. 1849. Lowest reading = 28·500, on the 27th of Feb. 1843. Extreme range for nine years = 2·240.

TABLE III.

Mean Elastic Force of Vapour at the Royal Observatory, Greenwich, and at Guernsey.

Years.	JANUARY.		FEBRUARY.		MARCH.		APRIL.		MAY.		JUNE.		JULY.		AUGUST.		SEPT.		OCTOBER.		NOVEMBER.		DECEMBER.		Mean Ann.	
	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.
1842																								·313		
1843	·246	·272	·214	·235	·261	·261	·296	·302	·360	·349	·391	·394	·465	·431	·490	·472	·453	·469	·324	·337	·278	·304	·286	·312	·338	·345
1844	·234	·282	·201	·243	·238	·282	·308	·337	·329	·349	·397	·439	·441	·456	·406	·441	·422	·497	·329	·383	·289	·315	·190	·235	·315	·355
1845	·229	·272	·176	·236	·186	·244	·271	·313	·311	·326	·447	·426	·434	·428	·409	·441	·370	·424	·332	·372	·292	·337	·244	·291	·309	·343
1846	·272	·302	·264	·281	·250	·291	·287	·324	·349	·351	·458	·435	·466	·448	·481	·488	·442	·445	·340	·351	·295	·315	·182	·235	·341	·356
1847	·213	·234	·200	·231	·214	·252	·235	·282	·350	·351	·366	·376	·467	·450	·470	·431	·362	·358	·361	·385	·302	·337	·263	·291	·317	·331
1848	·182	·235	·257	·272	·252	·282	·278	·304	·356	·367	·394	·385	·437	·431	·411	·402	·385	·414	·336	·339	·254	·285	·266	·272	·317	·332
1849	·233	·269	·255	·281	·230	·245	·256	·234	·303	·302	·354	·380	·398	·393	·417	·410	·387	·443	·316	·322	·263	·322	·223	·272	·303	·323
1850	·182	·244	·257	·303	·204	·242	·281	·325	·298	·308	·375	·432	·446	·488	·414	·455	·352	·443	·276	·348	·283	·355	·231	·296	·300	·353
1851	·252	·309	.228	·315	·238	·277	·255	·299	·293	·342	·372	·431	·403	·459	·425	·496	·350	·433	·330	·396	·200	·253	·228	·269	·298	·356
Means..	·227	·268	·228	·266	·230	·264	·274	·302	·328	·338	·395	·409	·440	·442	·436	·448	·390	·436	·327	·359	·273	·313	·235	·275	·315	·344

TABLE IV.

Monthly Range of Barometer at Guernsey, deduced from the Highest and Lowest Readings.

Years.	JANUARY.	FEBRUARY.	MARCH.	APRIL.	MAY.	JUNE.	JULY.	AUGUST.	SEPT.	OCTOBER.	NOV.	DEC.	MEAN. ANN
1843	1·776	1·452	1·040	·716	·661	·878	·663	·906	·780	1·179	·969	·662	·975
1844	1·026	1·333	1·185	·832	·735	·569	·680	·685	·613	1·201	1·516	1·014	·949
1845	1·219	·938	1·063	1·065	·854	·935	·939	1·039	·857	1·140	1·034	1·390	1·038
1846	1·486	·809	1·310	1·221	1·258	·764	·776	·518	·970	1·346	1·034	1·947	1·120
1847	·978	·918	·985	·989	1·118	·906	·487	·681	·638	·864	1·361	1·367	·942
1848	1·368	1·658	1·439	·826	·958	·874	·943	·574	1·253	·787	1·320	·969	1·081
1849	1·260	1·367	1·588	·991	·892	·519	·771	·757	1·448	1·404	1·136	1·238	1·114
1850	1·273	1·080	·993	1·107	1·006	·771	·482	·763	·919	1·198	1·458	1·350	1·038
1851	1·284	1·068	1·716	·807	·815	·773	·821	·544	1·088	1·348	·969	·914	1·012
Means..	1·279	1·180	1·257	·950	·922	·776	·729	·718	·952	1·163	1·199	1·206	1·030

TABLE V.

Adopted Mean Temperature from Readings of Dry Bulb Thermometer at 9 A.M. and 3 P.M., and of Register Thermometer at 9 A.M. Corrected for Diurnal Range from Mr. Glaisher's Tables.

Years.	JAN.		FEB.		MARCH.		APRIL.		MAY.		JUNE.		JULY.		AUG.		SEPT.		OCT.		NOV.		DEC.		WINTER.		SPRING.		SUMMER.		AUTUMN.		ANNUAL.	
	R. O.	GU.	R. O.	GU.	R. O.	GU.	R. O.	GU.	R. O.	GU.	R. O.	GU.	R. O.	GU.	R. O.	GU.	R. O.	GU.	R. O.	GU.	R. O.	GU.	R. O.	GU.	R. O.	GU.	R. O.	GU.	R. O.	GU.	R. O.	GU.	R. O.	GU.
1842																							45·0	47·4										
1843	39·9	44·3	36·0	40·5	42·9	44·7	47·1	48·3	52·2	51·7	56·3	55·0	60·9	60·8	62·1	61·6	59·5	61·5	48·0	54·0	43·8	49·6	43·9	48·3	40·3	44·0	47·4	48·2	59·8	59·1	50·4	55·0	49·4	51·6
1844	39·1	45·8	35·2	41·9	41·5	45·4	51·7	51·8	52·9	52·9	60·7	58·9	61·4	60·8	57·7	60·0	56·9	60·2	49·5	54·4	44·0	49·3	33·0	40·8	39·4	45·3	48·7	50·0	59·9	59·9	50·1	54·6	48·6	51·3
1845	38·3	43·1	32·7	39·9	35·2	39·2	46·3	46·9	49·4	51·6	60·7	59·1	59·8	60·0	57·3	59·4	53·6	57·5	50·2	54·3	45·8	50·8	41·7	46·8	34·7	41·2	43·7	45·9	59·1	59·5	49·7	54·2	47·6	50·7
1846	43·7	46·6	43·9	47·0	43·3	46·6	47·1	48·9	54·6	54·8	65·3	63·2	64·5	63·1	63·2	63·1	60·1	62·2	50·5	54·9	46·0	49·6	32·9	41·7	43·1	46·8	48·3	50·1	64·3	63·1	52·2	55·5	51·3	53·4
1847	35·1	42·1	35·4	41·1	41·0	43·4	45·3	46·6	56·4	54·6	58·0	57·0	65·4	63·5	62·1	61·7	54·3	58·2	52·9	56·1	46·9	51·4	42·8	47·2	34·5	41·6	47·6	48·2	61·8	60·7	51·4	55·2	49·6	51·9
1848	34·6	40·7	43·4	45·8	43·8	46·0	47·6	49·2	59·7	57·7	58·5	56·7	61·5	60·9	58·5	59·5	55·8	59·3	51·6	54·3	43·8	47·9	44·0	48·2	40·3	44·5	50·3	50·9	59·5	59·9	50·4	53·8	50·2	52·1
1849	40·1	45·7	43·2	46·9	42·5	45·5	43·2	46·1	54·0	53·5	57·9	58·9	62·1	61·5	62·9	62·8	58·8	58·9	51·1	54·4	44·1	49·6	39·1	46·5	42·4	46·9	46·6	48·3	61·0	61·0	51·3	54·3	49·9	52·3
1850	33·7	39·5	44·7	46·1	39·9	43·4	48·5	47·9	51·3	51·3	60·8	58·6	62·2	61·2	60·2	60·6	56·4	58·4	47·0	50·5	46·5	49·8	40·6	46·2	39·2	43·4	46·6	47·5	61·1	60·1	50·0	52·9	49·4	51·1
1851	42·9	46·7	40·1	43·6	42·6	45·5	44·7	47·3	50·9	51·5	58·9	58·6	60·1	65·0	62·3	62·8	56·9	58·8	52·6	54·3	37·9	44·5	40·4	44·9	41·2	45·9	46·1	48·1	60·4	62·1	49·2	52·5	49·2	51·9
Means	38·6	43·8	39·4	43·6	41·4	44·4	46·8	48·1	53·5	53·3	59·7	58·4	62·0	61·9	60·7	61.3	56·9	59·4	50·4	54·1	44·2	49·2	39·8	45·4	39·5	44·2	47·8	48·6	62·3	60·6	51·9	54·3	49·4	51·9

Note.—The Winter Quarter commences from the previous December.

TABLE VI.

Mean Daily Range of Temperature at the Royal Observatory Greenwich and at Guernsey.

Years.	JANUARY.		FEBRUARY.		MARCH.		APRIL.		MAY.		JUNE.		JULY.		AUGUST.		SEPT.		OCTOBER.		NOVEMBER.		DECEMBER.		MEAN ANN.	
	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.
1842																							8·2	6·0		
1843	7·9	5·9	7·5	7·0	12·4	6·9	15·4	9·0	14·7	9·0	15·2	13·8	15·6	11·5	16.4	11·0	17·4	9·3	12·8	8·3	10·2	7·1	6·6	4·9	12·7	8·7
1844	8·7	5·6	10·5	9·1	12·1	8·7	21·0	11·8	18·6	12·3	19·9	13·4	16·2	12·2	15·4	11·6	15·3	8·0	12·4	7·2	7·4	5·4	5·4	5·7	13·6	9·3
1845	6·4	6·4	8·7	6·3	11·1	7·9	16·8	9·7	14·2	11·6	18·2	12·8	14·9	9·9	14·8	10·7	15·6	8·2	13·3	6·6	10·9	5·8	9·9	6·9	12·9	8·6
1846	7·7	5·3	8·3	7·4	12·7	9·0	13·1	9·5	16·6	11·3	22·5	12·1	17·5	11·9	15·5	9·7	18·0	8·0	10·4	7·5	8·0	5·5	10·3	5·6	13·4	8·6
1847	8·8	5·3	11·6	7·1	16·0	7·9	18·3	9·3	21·2	12·5	19·4	13·4	23·3	13·5	21·0	10·7	18·7	10·8	14·0	6·7	11·4	6·7	9·7	5·6	16·1	9·1
1848	8·3	6·4	10·7	6·8	14·3	7·9	16·7	8·9	30·5	13·6	17·7	10·9	22·5	11·1	18·5	9·3	20·9	9·5	16·5	7·5	15·7	5·8	12·7	7·8	18·7	8·8
1849	10·7	8·0	12·9	7·6	13·8	9·1	16·0	10·3	16·3	10·9	17·1	13·2	22·6	12·9	20·2	11·2	17·5	7·4	15·1	6·0	11·7	5·8	9·1	6·5	15·2	9·1
1850	8·5	6·6	11·6	5·9	16·5	8·1	16·0	8·5	18·9	10·1	26·0	12·0	20·0	9·6	18·6	8·2	17·1	9·0	14·2	5·7	11·4	4·4	8·7	5·4	15·6	8·0
1851	10·0	5·2	13·2	6·2	12·1	6·5	16·2	8·4	19·6	8·8	22·1	11·5	20·1	10·6	20·0	10·0	20·6	8·2	13·0	6·5	11·9	6·0	8·0	7·2	15·6	8.0
Means..	8·6	6·1	10·6	7·0	13·4	8·0	16·6	9·5	19·0	11·1	19·8	12·6	19·2	11·5	16·8	10·2	18·0	8·7	13·5	6·9	10·9	5·8	9·9	6·1	14·8	8·7

TABLE VII.

Mean Dew Point at the Royal Observatory, Greenwich, and at Guernsey.

Years.	JANUARY.		FEBRUARY.		MARCH.		APRIL.		MAY.		JUNE.		JULY.		AUGUST.		SEPT.		OCTOBER.		NOVEMBER.		DECEMBER.		ANNUAL.	
	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.
1842																								44·9		
1843	37·3	40·8	33·4	36·6	38·9	39·6	42·6	43·8	48·8	48·0	51·2	51·6	56·3	54·2	57·8	56·9	54·9	56·7	44·7	47·0	40·9	44·0	42·0	44·8	45·7	47·0
1844	36·1	41·8	31·8	37·6	36·6	41·8	44·2	47·0	46·1	48·0	51·6	54·7	54·7	55·9	52·3	54·9	53·2	58·4	46·0	50·7	41·9	45·0	30·0	36·6	43·7	48·7
1845	35·9	40·8	28·5	36·2	30·0	37·9	40·6	44·9	44·6	46·0	55·2	53·9	54·4	54·1	52·6	54·9	49·7	53·7	46·5	49·9	42·8	47·0	37·7	42·8	43·2	46·8
1846	40·8	43·8	39·9	41·7	38·3	42·8	42·3	45·8	48·0	48·2	56·0	54·5	56·5	55·3	57·5	57·9	54·9	55·2	47·2	48·2	43·1	45·0	29·4	36·6	46·2	48·0
1847	33·4	36·5	31·7	35·5	33·9	38·6	36·7	41·8	48·2	48·2	49·4	50·2	56·4	55·5	56·1	54·2	49·7	48·8	49·0	50·9	43·9	47·0	40·0	42·8	44·0	45·8
1848	31·7	36·6	38·8	40·7	38·5	41·8	41·4	44·0	48·6	49·5	51·6	50·9	54·6	54·2	52·8	52·2	50·9	53·5	47·4	47·0	38·8	39·5	40·1	40·6	44·6	45·9
1849	36·4	40·4	38·9	41·1	36·1	37·0	39·1	35·1	43·9	39·3	48·4	48·5	51·1	50·4	53·3	50·2	51·1	53·6	45·1	51·8	39·8	45·2	35·1	40·5	43·2	44·4
1850	29·5	37·6	39·2	43·1	32·7	36·6	41·7	44·4	43·4	42·1	50·1	52·3	55·8	56·8	53·1	53·9	47·7	53·6	41·2	47·8	42·0	48·0	38·3	43·0	42·9	46·6
1851	38·9	44·4	35·8	40·3	37·0	40·5	39·7	42·3	42·4	44·9	50·3	51·7	52·2	55·5	53·8	56·7	48·2	52·9	46·4	51·5	32·2	38·3	35·7	40·3	42·7	46·5
Means	35·6	40·3	35·3	39·2	35·8	39·6	40·9	43·2	46·0	46·0	51·5	52·0	54·7	54·6	54·4	54·6	51·1	54·0	45·9	49·4	40·6	44·3	36·5	40·9	44·0	46·6

TABLE VIII.

Difference between Mean Dew Point and adopted Air Temperature, at the Royal Observatory, Greenwich, and at Guernsey.

Years.	JANUARY.		FEBRUARY.		MARCH.		APRIL.		MAY.		JUNE.		JULY.		AUGUST.		SEPT.		OCTOBER.		NOVEMBER.		DECEMBER.		ANNUAL.	
	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.
1842																								2·5		
1843	2·6	3·5	2·6	3·9	4·0	5·1	4·5	4·5	3·4	3·7	5·1	3·4	4·6	6·6	4·3	4·7	4·6	4·8	3·3	7·0	2·9	5·6	1·9	3·5	3·6	4·7
1844	3·0	4·0	3·4	4·3	4·9	3·6	7·5	4·8	6·8	4·9	9·1	4·2	6·7	4·9	5·4	5·1	3·7	1·8	3·5	3·7	2·1	4·3	3·0	4·2	4·9	4·2
1845	2·4	2·3	4·2	3·7	5·2	1·3	5·7	2·0	4·8	5·6	5·5	5·2	5·4	5·9	4·7	4·5	3·9	3·8	3·7	4·4	3·0	3·8	4·0	4·0	4·4	3·9
1846	2·9	2·8	4·0	5·3	4·9	3·8	4·8	3·1	6·6	6·6	9·3	8·7	8·0	7·8	5·7	5·2	5·2	7·0	3·3	6·7	2·9	4·6	3·5	5·1	5·1	5·6
1847	1·6	5·6	4·4	5·6	7·5	4·8	8·6	4·8	8·2	6·4	8·6	6·8	9·0	8·0	6·0	7·5	4·6	9·4	3·9	5·2	3·0	4·4	2·8	4·4	5·7	6·1
1848	2·9	4·1	4·6	5·1	5·3	4·2	6·2	5·2	11·1	8·2	6·9	5·2	6·9	6·7	5·7	7·3	4·9	5·8	4·2	7·3	5·0	8·4	3·7	7·6	5·6	6·4
1849	3·7	5·3	4·3	5·8	6·4	8·5	10·1	11·0	10·1	14·2	9·5	10·4	11·0	11·1	9·6	12·6	7·7	5·3	6·0	2·6	4·3	4·4	4·0	4·0	7·2	7·9
1850	4·2	1·9	5·6	3·0	7·8	6·8	6·8	3·5	7·9	9·2	10·7	6·3	6·4	4·4	7·1	6·7	8·7	4·8	5·8	2·7	4·5	1·8	2·3	3·2	6·6	4·5
1851	4·0	2·3	4·3	3·3	5·6	5·5	5·0	5·0	8·5	6·6	8·6	6·9	7·9	9·5	8·5	6·1	8·7	5·9	6·2	2·8	5·7	6·2	4·7	4·6	6·5	5·4
Means	3·0	3·5	4·1	4·4	5·9	4·8	6·6	4·9	7·5	7·4	8·1	6·3	7·3	7·2	6·3	6·7	5·8	5·4	4·4	4·8	3·6	4·8	3·3	4·4	5·5	5·4

TABLE IX.

Mean Degree of Humidity at the Royal Observatory, Greenwich, and at Guernsey.

Years.	JANUARY.		FEBRUARY.		MARCH.		APRIL.		MAY.		JUNE.		JULY.		AUGUST.		SEPT.		OCTOBER.		NOVEMBER.		DECEMBER.		ANNUAL.	
	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.	R.Ob.	Gu.
1842																								·897		
1843	·918	·863	·916	·859	·868	·858	·862	·865	·892	·873	·845	·888	·856	·797	·866	·803	·857	·863	·893	·788	·907	·813	·935	·867	·887	·844
1844	·902	·864	·891	·797	·845	·864	·777	·845	·793	·844	·742	·867	·802	·843	·840	·843	·877	·917	·889	·865	·931	·842	·898	·859	·849	·854
1845	·923	·927	·867	·892	·852	·958	·823	·933	·852	·816	·843	·842	·839	·821	·858	·843	·876	·867	·882	·843	·893	·871	·871	·866	·865	·873
1846	·901	·899	·873	·835	·848	·866	·848	·898	·802	·793	·763	·753	·787	·775	·843	·843	·853	·798	·892	·793	·906	·842	·908	·859	·852	·830
1847	·910	·827	·838	·828	·841	·859	·748	·864	·781	·793	·765	·796	·747	·753	·851	·797	·843	·708	·873	·844	·901	·871	·904	·866	·833	·817
1848	·837	·859	·864	·834	·839	·864	·794	·813	·664	·751	·768	·844	·762	·797	·797	·796	·795	·819	·853	·767	·848	·808	·873	·794	·808	·812
1849	·843	·860	·863	·885	·801	·817	·864	·693	·703	·695	·715	·728	·711	·736	·772	·726	·772	·888	·815	·956	·860	·879	·903	·884	·802	·812
1850	·897	·930	·830	·931	·770	·810	·795	·901	·765	·808	·702	·883	·804	·917	·788	·853	·772	·924	·820	·894	·857	·938	·920	·874	·810	·888
1851	·859	·935	·875	·919	·842	·876	·822	·882	·762	·870	·738	·851	·768	·887	·755	·843	·747	·855	·810	·914	·819	·820	·855	·877	·804	·877
Means	·887	·885	·868	·865	·834	·863	·815	·864	·767	·804	·764	·828	·786	·814	·819	·816	·821	·857	·858	·851	·880	·854	·896	·860	·834	·846

TABLE X. ANALYTICAL TABLE.

Years.	Mean height of Barometer.	M. elast. force of Vapour.	Mean range of Barometer.	Mean adopted Temp.	Mean Dew Point.	Mean deg. of Dryness	Mean deg. of Humid.	M. daily range of Temp.	Amount of Rain.	Days of Rn. Hail & Sleet.	Days of Snow	Days of Temp. abv. 75°.	Days of Temp. belo. 32°	Mean amount of Cloud	Days of Prevailing Wind.			
															N.E.	S.E.	S.W.	N.W.
1843	29·829	=·345	— ·975	—51·6	+47·0	—4·6	—·844	=8·7	+37·705	+191	—3·	— 4·	+ 9·	..	— 92	+55	=104	—114
1844	—·843	+·355	— ·949	—51·8	+48·7	—3·1	+·854	+9·3	—27·647	—157	+5·	— 3·	+10·	..	+132	—30	— 98	—107
1845	—·832	=·343	+1·038	—50·7	+46·8	—3·9	+·873	—8·6	—33·329	—160	+8·	— 3·	+16·	..	— 99	—38	+108	+120
1846	—·817	+·356	—1·120	+53·4	+48·0	=5·4	—·830	—8·6	+42·567	+181	+7·	+21·	— 0·	..	+110	—32	=104	+119
1847	+·875	—·331	— ·942	=51·9	—45·8	+6·1	—·817	+9·1	—29·222	—163	—2·	+20·	— 5·	..	— 92	+58	— 88	+127
1848	—·792	—·332	+1·081	+52·1	—45·9	+6·2	—·812	+8·8	+48·015	+213	—1·	— 2·	+ 6·	..	—101	—30	+122	—116
1849	+·891	—·323	—1·114	+52·3	—44·4	+7·9	—·812	+9·1	+36·393	—168	+6·	— 3·	— 2·	..	+108	—38	— 90	+127
1850	+·898	+·353	+1·033	—51·1	=46·6	—4·5	+·888	—8·0	+35·536	+175	=4·	— 2·	— 2·	+5·6	—103	—40	+110	—112
1851	+·899	+·356	—1·012	=51·9	—46·5	—4·4	+·877	—8·0	—29·319	+176	—0·	— 6·	— 0·	+5·3	+111	—33	+107	—114
Means	29·853	·344	1·030	51·9	46·6	5·4	·846	8·7	35·524	174	4·	7·1	5·5	5·5	104	41	104	118

The signs + — = relate to the average.

TABLE XI.

Amount of Rain collected in Pluviometer, 47 feet above the ground.

Years.	JAN.	FEB.	MARCH.	APRIL.	MAY.	JUNE.	Annual. Guernsey.
1843	3·278	3·105	1·272	4·763	4·379	3·359	37·7
1844	4·131	5·111	4·733	.484	·345	·455	27·6
1845	3·606	2·462	1·336	1·954	1·466	1·718	33·3
1846	6·494	2·095	3·856	3·905	3·220	2·037	42·5
1847	2·576	2·843	1·522	1·672	2·745	1·402	29·2
1848	3·120	5·362	4·545	4·075	·901	4·867	48·0
1849	4·160	1·703	1·259	3·707	2·356	1·138	36·3
1850	2·992	2·660	·900	4·366	1·598	1·198	35·5
1851	5·439	·884	5·859	1·869	1·387	·775	29·3
Mean..	3·977	2·914	2·809	2·977	2·044	1·883	35·5

Years.	JULY.	AUG.	SEPT.	OCT.	NOV.	DEC.	Annual. Greenwich.
1843	·815	3·576	·622	6·145	5·077	1·314	24·5
1844	1·090	1·332	1·354	3·759	4·052	·801	25·0
1845	3·989	1·668	4·964	2·018	4·408	3·740	22·3
1846	2·190	2·223	2·439	6·940	3·551	3·617	25·3
1847	1·753	1.264	1·674	3·732	2·967	5·062	17·6
1848	3·829	3·643	1·963	8·597	2·491	4·622	30·1
1849	2·469	·470	2·216	5·593	4·049	7·273	23·7
1850	1·493	4.104	3·207	4·637	4·523	3·858	19·6
1851	1·485	1·091	·635	4·759	3·957	1·179	20·2
Mean..	2·123	2·152	2·119	5·131	3·879	3·496	23·1

LIST OF PLANTS which bloom in Guernsey in the open air during the winter months.

DECEMBER. Anemones: single, red, blue, and white; Asters, of various kinds; Chamomile, two varieties; single and double Daisy; common Borage; Garden Wallflower; common Marigold; Corn Marigold; Ox-eye Daisy; Chimonanthus Fragrans, or winter flower; Wild Carrot; common Fumitory; Bloody Crane's Bill; Christmas Rose; Red-flowered Lychnis; Cat's Ear; Sheep's Scabious; Honesty; Mercury; Fig Marigold; Sweet-scented Colt's Foot; Smooth-leaved Sow Thistle; common Primrose; Cowslip; Polyanthus; Auricula; Purple Milkwort; Candy Tuft; Clove Carnation; Shepherd's Purse; Heart's Ease; Russian Violet; double Groundsel; several varieties of Oxalis; Heaths; Bregmansia Sanguinea; Bregmansia Lutea; Ceanothus Azureus; Cassia Prostrata; Clematis Cærulea; Crepis Virens; Daphne Purpurea; Escallonia Discolor; Fuchsias, of various kinds; Genistas, ditto; Gnidia Simplex; Lavandula; Gallardia Bicolor; Jasminum Undiflorum; Leontus Leonurus; Lupinus Cruickshankia; Nerine Humilis; Oenothera; Salvia Grahamii; Penstemon Albidum; Santolina; Sollya Heterophilla; Tasconia Mollissima; Torilis Anthriscus; Aloysia Cetrodora; Magnolia Grandiflora. About Christmas, broccoli are abundant in the market.

JANUARY. Crocrus Japonica; Arnopogon; Papaver Orientale; Narcissus Odorus (yellow and white); Fuchsia Coccinea; Scarlet Star Anemones; Reseda Odorata (Mignonette); Cheiranthus (double yellow); Cheiranthus Maritimus; Vinca Major; Arabis Alpina; Crocus (common yellow); Laurustinus; Nemophylla Alba; Muscari Racemosum; Erysimum Perowskianum; Linum (white and yellow); Camelia Japonica (variegated, red, and white); Helleborus Niger; Cheiranthus Fragrans Grandiflorus; Daphne Mezereon; Daphne Dauphinia; Daphne (the white highly-scented variety); Erica Arborea Alba; Erica (dwarf pink or herbacea); Genista Hybrida; Double Red Brompton Stock; Russian Violets;

Hepatica Rosea; Common Dark Polyanthus; Snowdrops; Iberis Ciliata; Anemone Hortensis, and a variety introduced from the Pyrenees; Chrysanthemum (small double yellow); Double White and Double Lilac Primroses; Cynoglossum Omphalodes.

Growing against Walls. Common China Rose; Common Red Rose; Veronica Speciosa; Veronica Cindeiana; Clyanthus Punicea; Pyrus Japonica; Coronilla Glauca; Fuchsia Serratifolia; Scarlet Geranium (Smith's Emperor); Red Salvia.

February. Camelia Japonica (single red, double red, variegated, white, and other varieties); Erica (dwarf pink, Mediterranean, and Arborea Alba); Petus Porum; Coronilla Glauca; Berberis Æquifolia; Laurustinus (shining leaved and common); Ulex (doublo yellow furze); Polygala Latifolia; Rosmarinus Officinalis; Magnolia Conspicua; the Almond Tree; Standard Plum Trees; Hepatica (pink and blue); White and lilac Madagascar Primula (Rosea and Alba); Violets (Russian, Neapolitan, and French tree); Narcissus (bicolor and odorus); Pseudo-Narcissus; Hyacinthus (common single, of various colours); Scarlet Star Anemones; Polyanthus, of various colours; Auricula, ditto; Iberis Perennis; Crocus, of various colours; Arabis Alpina; Nemophylla Insignis Alba; Vinca, major and minor; Cheiranthus (double yellow); Cheiranthus Maritimus; Muscari Racemosum; Arnopogon; Mesembryanthemum (bicolor and a pale pink, and small purple variety); Genista Hybrida; Rhododendron Arborea Hybrida.

Against Walls. Veronica Speciosa; Common China Rose; Peach, Nectarine, and Apricot trees.

RICHARDS, 37, GT. QUEEN ST. LINCOLN'S-INN-FIELDS.